

REMARKS

Claim 1 is amended; claims 22-82 are canceled; and claims 83-88 are newly added. Claims 1-21 and 83-88 are now pending in the application. Applicants respectfully request reexamination and reconsideration of the application.

In the interest of expediting the allowance and issuance of independent claim 1 and claims depending from it, claims 22-82 are canceled without prejudice.

Claims 1-21 stand rejected as anticipated by Smith et al. (U.S. Patent No. 5,613,861) ("Smith"), or unpatentable over Smith in view of Faraci et al. (U.S. Patent No. 5,810,609) ("Faraci").

Smith teaches the fabrication of a spring contact 15 by depositing "in several sub-layers 16-1 to 16-n to a final thickness h of approximately 1 μ m." (Col. 6, lines 49-51 & Fig. 11.) This small thickness of the Smith spring contact is one of the deficiencies of the prior art that Applicants overcome with the present invention. As disclosed by Applicants in the Description of the Prior Art section of the present application as filed, "In order to achieve the desired shape of the body, Smith et al. must limit the thickness of the interconnection element described in U.S. Patent No. 5,613,861. A limit on the thickness of the interconnection element limits the spring constant, k, of the interconnection element (k increases as thickness increases) particularly in state-of-the-art interconnection element arrays where the dimensions (e.g., length and width) of individual interconnection arrays are reduced to accommodate a corresponding increase in contact pad or terminal density. A reduction of the spring constant generally reduces the amount of load or force, F, that may be applied to resilient interconnection elements for a given deflection, x ($k=F/x$). Thus, such interconnection elements generally sustain at best a moderate contact force, which may not be enough to effect reliable pressure contact to an electronic component.

What is needed is a resilient interconnection element and a method of improving the resiliency of an interconnection element, particularly interconnection

elements that are suitable for present fine-pitch electrical connections and that is/are scalable for future technologies.” (Page 5, line 14 through page 6, line 14.)

In contrast to Smith, Applicants teach a method of contact spring fabrication that yields springs having thicknesses of at least 1 to 500 μm . (Page 24, lines 4-7). Specific examples are provided wherein the overall thickness of the spring contact is 8-11 μm (page 22, lines 10-13), or greater than 25 μm (page 29, lines 29-32, and page 38, lines 29-31). Examples are also provided wherein the spring contacts have first element material having a thickness of 1-3 μm (page 20, lines 22-24), 5 μm (page 21, line 32 to page 22, line 2 and page 22, lines 10-11) or 12-25 μm (page 30, lines 26-30), and second element material having a thickness of 3-6 μm (page 22, lines 11-13) or 3-4 μm (page 25, lines 23-25). As taught in the present application, these greater spring thicknesses not taught or suggested by Smith provide for higher and therefore more reliable pressure contact to an electronic component, particularly for finer contact pad pitches. All claims now pending recite (independently or dependently) an interconnection element having an overall thickness greater than 1 μm .

CONCLUSION

In view of the foregoing, it is believed that all claims now pending (1) are in proper form, (2) are neither obvious nor anticipated by the relied upon art of record, and (3) are in condition for allowance. A Notice of Allowance is earnestly solicited at the earliest possible date. If the Patent Office believes that a telephone conference would be useful in moving the application forward to allowance, the Patent Office is encouraged to contact the undersigned at (925 290-4031).

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 50-0285 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

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